Directions. Please submit your answer to the following problem in a LaTeX-prepared document. Class participants are encouraged to prepare solutions in a collaborative mode but to prepare their to-be-submitted write-ups individually. The consequences of sharing files, electronic or otherwise, are discussed in the course syllabus.¹

Please include the problem number along with a statement of the problem in your submission. Please also include your e-mail address.

Problem. Let 1 denote the multiplicative identity in a field, \( F \). Prove that

\[ (-x) = (-1)x, \quad \forall x \in F. \]

(The additive inverse of \( x \) is \( x \) times the additive inverse of the multiplicative identity.) (It may be convenient to use the identity \( 0x = 0 \).)

¹If the wording of this problem was discussed in detail in the classroom, the course instructor expects to see similar phrases and sentences in reading the submissions.